may be no pressure gradient and no symptoms at rest, but a significant pressure gradient and associated symptoms when flow is increased by ambulation (Grade II venous obstruction).[4]

Proximal blood pressure cuff occlusion[5] and exercise[3] have been described as methods to increase limb blood flow in this situation; both are relatively cumbersome. Intraarterial papaverine is a direct, convenient method of reproducibly increasing limb flow. Despite the presence of equal resting pressures, suspicion for obstruction was high in this patient. The finding that papaverine-induced hyperemia increased venous pressure by 300% (in the absence of contralateral change) unmasked the diagnosis of venous obstruction, allowing the performance of venous bypass rather than valve transposition or repair.

This method could easily be performed in the outpatient setting to improve the identification of otherwise occult proximal venous obstruction. Our observations suggest that some patients with ambulatory complaints but no pressure gradient at rest will prove to have a hemodynamically significant obstruction when increased flow in the limb is pharmacologically produced.

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Compression of the descending duodenum after reconstruction of infrarenal aortic aneurysm

To the Editors:

The reported incidence of duodenal obstruction after infrarenal aortic aneurysm repair ranges from less than 1% to 2.5%[1-3] and is always located in the third or fourth part of the duodenum. To our knowledge, this is the first report of an obstruction of the second (descending) part of the duodenum that occurred after reconstruction of an abdominal aortic aneurysm.

CASE REPORT

In June 1995, a 89-year-old man with a 6-cm abdominal aortic aneurysm was admitted for surgery. A Dacron bifurcation graft was placed infrarenally, and the postoperative course was uneventful. The patient was discharged from the hospital on the 15th day after surgery. Two weeks later he developed pain in the back, nausea, and vomiting. He was admitted to our hospital, and examination revealed a mechanical ileus. A nasogastric tube was inserted, and the patient received total parenteral nutrition. Gastroscopy revealed a submucosal tumor of the descending portion of the duodenum, and upper gastrointestinal contrast series confirmed an intraluminal filling defect (Figs. 1 and 2). Computed tomography demonstrated no connection between this tumor and the Dacron graft. After 3 weeks of persisting obstruction, the patient underwent exploratory laparotomy. A large retroperitoneal cyst adhered to and compressed the descending duodenum. The cyst wall was opened and blood clots were evacuated. After surgery the patient made a rapid recovery, and no further complications were reported at follow-up.

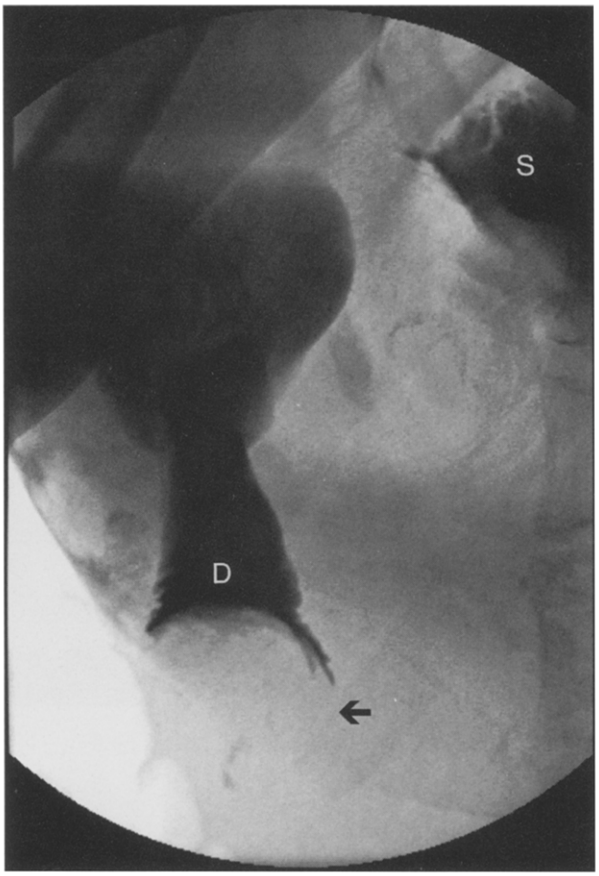

Fig. 1. Upper gastrointestinal contrast study shows stomach *(S)* and intraluminal filling defect *(arrow)* of the descending duodenum *(D)*.

DISCUSSION

According to Crowson et al.,[1] the overall rate of gastrointestinal complications after infrarenal aortic aneu-

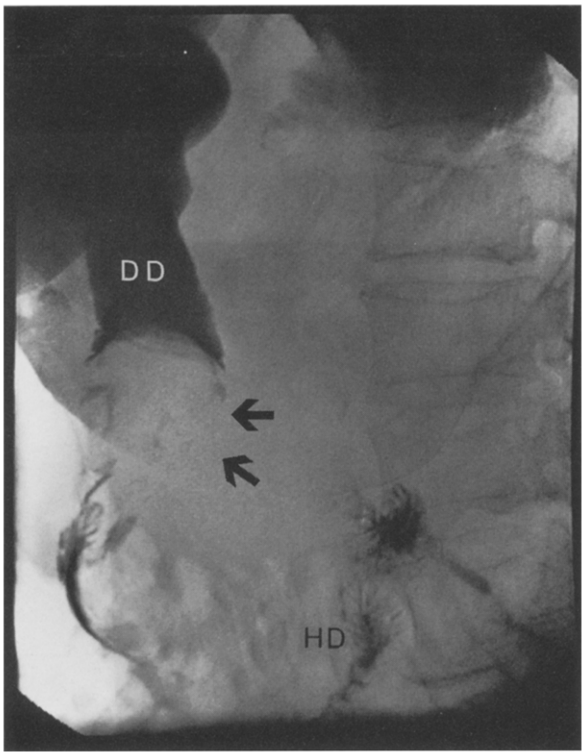

Fig. 2. Barium contrast accumulates in the descending duodenum *(DD)*, and only small amounts pass the submucosal tumor *(arrow)* and reach the horizontal duodenum *(HD)*.

rysm repair is 6.6%. In their series of 472 aortic aneurysmectomies, a small bowel obstruction developed after surgery in only two patients, caused by adherence to the aneurysmal sac and a deep tension suture having pierced the small bowel, respectively. Available data suggest that the obstruction is usually caused by perigraft collagenous adhesions and is probably less likely to occur if the mobilized duodenum is not replaced directly over the aorta during the resuturing of the retroperitoneum.[3]

Duodenal obstruction as a result of compression by a retroperitoneal hematoma is a rare postoperative occurrence and has been described in only two cases,[4,5] in which, however, the hematoma was located in the third part of the duodenum. In those cases, a large retroperitoneal hematoma compressed the third portion of the duodenum anteriorly against the superior mesenteric artery (superior mesenteric artery syndrome). Extensive retroperitoneal dissection extending proximally up to the origins of the renal arteries, implantation of a vascular prosthesis, and the use of heparin constitutes a major potential source of bleeding.[5] In our patient the obstruction was located in the descending part of the duodenum, which has not been reported previously.

Usually a retroperitoneal duodenal hematoma does not require surgery. Continuous nasogastric suction should be employed and total parenteral nutrition initiated. The patient should be reevaluated with upper gastrointestinal contrast studies or gastroscopy at a 7 day interval. Operative exploration and evacuation of the hematoma must be considered after 2 weeks of unsuccessful conservative therapy. In case of a superior mesenteric artery syndrome, end-to-side duodenojejunostomy or a gastroenterostomy are considered to be the method of choice.[5]

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Necrotizing venulitis and in situ saphenous vein bypass

To the Editors:

Residual side branches and concomitant arteriovenous fistula are well known complications associated with in-situ greater saphenous vein bypass.[1] Morphologically they may be divided in two main groups. The first consists of perforators that connect the superficial venous system to the deep one. Physiologically these are true arteriovenous fistulas that sometimes cause a loss of pulsatility in the distal section of the graft, which may result in distal thrombosis.[2] The second group consists of smaller superficial venules related to the skin capillary. They perfuse in a retrograde fashion the capillary network of the dermis. They are not anatomically true arteriovenous fistulas but instead carry through the venous capillary pathway a competitive flow to the dermal arteriolar supply. Consequently, they may cause local venous hypertension with painful cutaneous flares that occasionally result in skin ulcerations.[3] Although the former group normally needs surgical correction to prevent graft hemodynamic failure, the latter is usually self-limited and uneventful, although it may occasionally become quite spectacular and be troublesome for the surgeon who has to deal with it (Fig. 1). Light microscopic examination of these skin lesions reveals that the epidermis is normally preserved